

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Larry S. Eoff, et al.	)	
		)	Art Unit: Unknown
Serial No.:	Unknown	)	
		)	
Filed:	Concurrently Herewith	)	Examiner: Unknown
		)	
For:	Methods of Reducing the	)	
	Permeabilities of	)	
	Horizontal Well Bore	)	
	Sections	)	
		)	

INFORMATION DISCLOSURE STATEMENT

ASSISTANT COMMISSIONER FOR PATENTS  
Washington, D.C. 20231

SIR:

The following documents are known to Applicants or Applicants' attorneys and are submitted for the Examiner to consider in the above-captioned application.

U. S. PATENTS

U.S. Patent Number 3,382,924 issued May 14, 1968 to Carl D. Veley, et al;

U.S. Patent Number 4,129,183 issued December 12, 1978 to George Kalfoglou;

U.S. Patent Number 4,158,521 issued June 19, 1979 to Robert W. Anderson, et al;

U.S. Patent Number 4,366,071 issued December 28, 1982 to Homer C. McLaughlin, et al;

U.S. Patent Number 4,366,072 issued December 28, 1982 to  
Homer C. McLaughlin, et al;

U.S. Patent Number 4,366,073 issued December 28, 1982 to  
Homer C. McLaughlin, et al;

U.S. Patent Number 4,366,074 issued December 18, 1982 to  
Homer C. McLaughlin, et al;

U.S. Patent Number 4,374,739 issued February 22, 1983 to  
Homer C. McLaughlin, et al;

U.S. Patent Number 4,393,939 issued July 19, 1983 to Charles  
W. Smith, et al;

U.S. Patent Number 4,395,340 issued July 26, 1983 to Homer  
C. McLaughlin;

U.S. Patent Number 4,401,789 issued August 30, 1983 to  
Charles M. Gideon;

U.S. Patent Number 4,439,334 issued March 27, 1984 to John  
K. Borchardt;

U.S. Patent Number 4,440,649 issued April 3, 1984 to Royal  
E. Loftin, et al;

U.S. Patent Number 4,447,342 issued May 8, 1984 to John K.  
Borchardt, et al;

U.S. Patent Number 4,460,627 issued July 17, 1984 to Immie  
D. Weaver, et al;

U.S. Patent Number 4,462,718 issued July 13, 1984 to Homer  
C. McLaughlin, et al;

U.S. Patent Number 4,532,052 issued July 30, 1985 to Jimmie  
D. Weaver, et al;

U.S. Patent Number 4,536,297 issued August 20, 1985 to Royal E. Loftin, et al;

U.S. Patent Number 4,536,305 issued August 20, 1985 to Jon K. Borchardt, et al;

U.S. Patent Number 4,604,216 issued August 5, 1986 to Howard B. Irvin, et al;

U.S. Patent Number 4,693,639 issued September 15, 1987 to Keith H. Hollenbeak, et al;

U.S. Patent Number 4,730,028 issued March 8, 1988 to Jan Bock, et al;

U.S. Patent Number 4,828,726 issued May 9, 1989 to Ronald E. Himes, et al;

U.S. Patent Number 5,071,934 issued December 10, 1991 to Dennis G. Peiffer;

U.S. Patent Number 5,097,904 issued March 24, 1992 to Ronald E. Himes;

U.S. Patent Number 5,146,986 issued September 15, 1992 to E. Dwyann Dalrymple;

U.S. Patent Number 5,160,642 issued November 3, 1992 to John A. Schield, et al;

U.S. Patent Number 5,197,544 issued March 30, 1993 to Ronald E. Himes;

U.S. Patent Number 5,208,216 issued May 4, 1993 to C. Darwin Williamson, et al;

U.S. Patent Number 5,379,841 issued January 10, 1995 to Giinter Pusch, et al;

U.S. Patent Number 5,607,902 issued March 4, 1997 to Kevin W. Smith, et al;

U.S. Patent Number 5,887,653 issued March 30, 1999 to L. W. Bishop, et al;

U.S. Patent Number 5,972,848 issued October 26, 1999 to Annie Audibert, et al;

U.S. Patent Number 6,277,900 issued August 21, 2001 to Reinhard Oswald, et al;

U.S. Patent Number 6,476,169 issued November 5, 2002 to Larry S. Eoff, et al;

U.S. Patent Number 5,944,106 issued August 31, 1999 to Eldon D. Dalrymple, et al;

U.S. Patent Number 6,070,664 issued June 6, 2000 to Eldon D. Dalrymple, et al;

U.S. Patent Number 6,497,283 issued December 24, 2002 to Larry S. Eoff, et al;

U.S. Patent Number 6,569,983 issued May 27, 2003 to Duane Treybig, et al;

U.S. Patent Number 5,271,466 issued December 21, 1993 to Weldon M. Harms;

U.S. Patent Number 5,735,349 issued April 7, 1998 to Jeffrey C. Dawson, et al;

U.S. Patent Number 5,944,106 issued August 31, 1999 to Eldon D. Dalrymple, et al;

U.S. Patent Number 6,228,812 issued May 8, 2001 to Jeffrey C. Dawson, et al;

U.S. Patent Number 6,283,210 issued September 4, 2001 to Mohamed Yousef Soliman, et al;

Application Serial No. 10/236,722 entitled "Compositions for and Methods of Stabilizing Subterranean Formations Containing Clays" (2002-IP-002244);

Application Serial No. 10/375,787 entitled "Drilling Fluid Component" (2002-IP-007056U1);

Application Serial No. 10/440,337 entitled "Method for Stimulating Hydrocarbon Production and Reducing the Production of Water from a Subterranean Formation" (2001-IP-005267);

Application Serial No. 10/612,271 entitled "Methods of Reducing Water Permeability for Acidizing a Subterranean Formation" (2002-IP-007945);

U.S. Patent Number 3,215,199 issued November 2, 1965 to Richard E. Dilgren;

U.S. Patent Number 3,297,090 issued January 10, 1967 to Richard E. Dilgren;

U. S. Patent Number 3,307,630 issued March 7, 1967 to Richard E. Dilgren, et al;

U.S. Patent Number 2,863,832 issued December 9, 1958 to Richard L. Perrine;

U.S. Patent Number 2,190,436 issued October 27, 1959 to Irving Fatt, et al;

U.S. Patent Number 3,251,415 issued April 1, 1965 to Caurino C. Bombardieri, et al;

U. S. Patent Number 3,441,085 issued April 29, 1969 to J. L. Gidley;

U.S. Patent Number 3,451,818 issued June 24, 1969 to R. R. Wareham;

U.S. Patent Number 6,476,169 issued November 5, 2002 to Larry S. Eoff, et al;

U.S. Patent Number 6,364,016 issued April 2, 2002 to Eldon D. Dalrymple, et al;

#### **Foreign Patents**

European Patent Number EP 1 033 378 A1 issued February 18, 2000;

PCT Patent Number WO 93/15164 published August 5, 1993;

PCT Patent Number WO 99/49183 published September 30, 1999;

PCT Patent Number WO 99/50530 published October 7, 1999; and

PCT Patent Number WO 02/097236 published December 5, 2002.

#### **Other Art**

Article entitled "Controlling Formation Damage Using Clay Stabilizers: A Review" by Z.J. Zhou et al, dated 1995;

Patent Application No. 2003-IP-009464 entitled "Methods and Compositions for the Diversion of Aqueous Injection Fluids in Injection Operations"; and

Patent Application No. 2001-IP-005267U1P1 entitled "Methods and Compositions for Reducing the Production of Water and

Stimulating Hydrocarbon Production from a Subterranean Formation” and which is a continuation-in-part of U.S. Application No. 10/440,337.

INIKORI, SOLOMON OVUEFERAYE, “Numerical Study of Water Coning Control with Downhole Water Sink (DWS) Well Completions in Vertical and Horizontal Wells,” A Dissertation, August 2002, title page, contents, abstract and pp. 17-18, The Department of Petroleum Engineering;

HALLIBURTON, 2001 Press Release, “First Halliburton H2Zero™ Conformance Solution Job Performed for a Producing Well in Egypt,” [www.halliburton.com/news/archives/2001esgnws\\_111901.jsp](http://www.halliburton.com/news/archives/2001esgnws_111901.jsp), November 19, 2001, 2 pp.;

HALLIBURTON, 2001 Press Release, “Halliburton Performs First H2Zero™ Conformance Solution Job in North America,” [www.halliburton.com/news/archives/2001esgnws\\_082201.jsp](http://www.halliburton.com/news/archives/2001esgnws_082201.jsp), August 22, 2001, 2 pp.;

HALLIBURTON, 2001 Press Release, “Halliburton Technology Uses Revolutionary Polymer System to Control Unwanted Water Production,” [www.halliburton.com/news/archives/2001lesgnws\\_053101.jsp](http://www.halliburton.com/news/archives/2001lesgnws_053101.jsp), May 31, 2001, 2 pp.;

BJ SERVICES COMPANY, Aquacon, 08/01/01, 2 pp.;

BJ SERVICES COMPANY, Aquatrol 1, 12/14/00, 2 pp.;

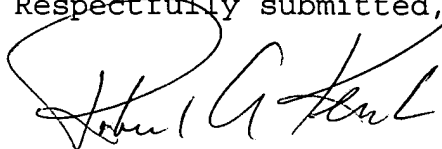
EOFF, LARRY ET AL, “Structure and Process Optimization for the Use of a Polymeric Relative-Permeability Modifier in Conformance Control,” SPE eLibrary paper no. 64985, 2001 Copyright, 2 pp.;

BOTERMANS, C. WOUTER ET AL. “Relative Permeability Modifiers: Myth or Reality?” SPE eLibrary paper no. 68973, 2001 Copyright, 2 pp.; and

BJ SERVICES COMPANY, Aquacon, 08/01/01, 2 pp.

Copies of the aforementioned references and Form PTO-1449 are submitted herewith.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Robert A. Kent". The signature is written in a cursive style with a large, looping initial "R".

Robert A. Kent  
Registration No. 28,626  
Halliburton Energy Services  
P. O. Box 1431  
Duncan, OK 73536-0440  
580-251-3125



<b>FORM PTO-1449 (Modified)</b>  LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT  (Use several sheets if necessary)	ATTY. DOCKET NO. 2002-IP-007848U1	SERIAL NO. Unknown
	APPLICANT Larry S. Eoff, et al	
	FILING DATE Concurrently herewith	GROUP Unknown

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	3,382,924	05/14/68	Veley et al.	166	42	
	AB	4,129,183	12/12/78	Kalfoglou	166	300	
	AC	4,158,521	06/19/79	Anderson et al.	405	264	
	AD	4,366,071	12/28/82	McLaughlin et al.	2582	8.55R	
	AE	4,366,072	12/28/82	McLaughlin et al.	252	8.55R	
	AF	4,366,073	12/28/82	McLaughlin et al.	252	8.55R	
	AG	4,366,074	12/28/82	McLaughlin et al.	252	8.55R	
	AH	4,374,739	02/22/83	McLaughlin et al.	252	8.55R	
	AI	4,393,939	07/19/83	Smith et al.	166	293	
	AJ	4,395,340	07/26/83	McLaughlin	252	8.55D	
	AK	4,401,789	08/30/83	Gideon	524	827	
	AL	4,439,334	03/27/84	Borchardt	252	8.55D	

## FOREIGN PATENT DOCUMENTS

		Document No.	Date	Country	Class	Subclass	Translation	
							Yes	No
	AM	EP 1033378	02/18/00	European	CO8F	220/58		X
	AN	WO 93/15164	08/05/93	PCT	CO9K	7/00	X	
	AO	WO 99/49183	09/30/99	PCT	E21B	43/02	X	
	AP	WO 99/50530	10/07/99	PCT	E21B	43/02	X	
	AQ							

## OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR		Paper entitled "Controlling Formation Damage Using Clay Stabilizers: A Review", by Z. J. Zhou et al., dated 1995
	AS		
	AT		

EXAMINER

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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	4,440,649	04/03/84	Loftin et al.	252	8.5C	
	AB	4,447,342	05/08/84	Borchardt et al.	252	8.55D	
	AC	4,460,627	07/17/84	Weaver et al.	427	212	
	AD	4,462,718	07/31/84	McLaughlin et al.	405	264	
	AE	4,532,052	06/30/85	Weaver et al.	252	8.55R	
	AF	4,536,297	08/20/85	Loftin et al.	252	8.5C	
	AG	4,536,305	08/20/85	Borchardt et al.	252	8.55R	
	AH	4,604,216	08/05/86	Irvin, et al.	252	8.510	
	AI	4,693,639	09/15/87	Hollenbeak et al.	405	263	
	AJ	4,730,028	03/08/88	Bock, et al.	526	225	
	AK	4,828,726	05/09/89	Himes et al.	252	8.553	
	AL	5,071,934	12/10/91	Peiffer	526	307	
	AM	5,097,904	03/24/92	Himes	166	294	

## FOREIGN PATENT DOCUMENTS

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							Yes	No
	AN							
	AO							
	AP							
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	5,146,986	09/15/92	Dalrymple	166	294	
	AB	5,160,642	11/03/92	Schild et al.	252	8.551	
	AC	5,197,544	03/30/93	Himes	166	294	
	AD	5,208,216	05/04/93	Williamson et al.	507	120	
	AE	5,379,841	01/10/95	Pusch, et al.	166	295	
	AF	5,607,902	03/04/97	Smith et al.	507	120	
	AG	5,887,653	03/30/99	Bishop et al.	166	281	
	AH	5,972,848	10/26/99	Audibert et al.	507	119	
	AI	6,277,900	08/21/01	Oswald, et al.	523	130	
	AJ	6,476,169	11/05/02	Eoff, et al.	526	307.2	
	AK						

## FOREIGN PATENT DOCUMENTS

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EXAMINER INITIAL		Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	5,944,106	08/31/99	Dalrymple, et al	166	281	
	AB	6,070,664	06/06/00	Dalrymple, et al.	166	281	
	AC	6,497,283	12/24/02	Eoff, et al.	166	293	
	AD	6,569,983	05/27/03	Treybig, et al.	528	102	
	AE	5,271,466	12/21/93	Harms	166	300	
	AF	5,735,349	04/07/98	Dawson, et al.	166	295	
	AG	5,944,106	08/31/99	Dalrymple, et al.	166	281	
	AH	6,228,812	05/08/01	Dawson, et al	507	221	
	AI	6,283,210	09/04/01	Soliman, et al	166	270	
	AJ	10/236,722		Eoff, et al.			09/06/02
	AK	10/375,787		Eoff, et al.			02/27003
	AL	10/440,337		Eoff, et al.			05/16/03
	AM	10/612,271		Eoff, et al.			07/02/03

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EXAMINER INITIAL		Document No.	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	3,215,199	11/02/65	Dilgren	166	38	
	AB	3,297,090	01/10/67	Dilgren	166	38	
	AC	3,307,630	03/07/67	Dilgren, et al	166	38	
	AD	2,863,832	12/09/58	Perrine	252	8.55	
	AE	2,910,436	10/27/59	Fatt, et al	252	8.55	
	AF	3,251,415	05/17/66	Bombardier, et al	166	42	
	AG	3,441,085	04/29/69	Gidley	166	307	
	AH	3,451,818	06/24/69	Wareham	96	78	
	AI	6,476,169	11/05/02	Eoff, et al	526	307	
	AJ	6,364,016	04/02/02	Dalrymple, et al	166	270	
	AK						

## FOREIGN PATENT DOCUMENTS

		Document No.	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL	WO 02/097236	12/05/02	PCT	E21B	43/02	X	
	AM							
	AN							
	AO							
	AP							

## OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR		Patent Application No. 2003-IP-009464 entitled "Methods and Compositions for the Diversion of Aqueous Injection Fluids in Injection Operations".
	AS		Patent Application No. 2001-IP-005267U1P1 entitled "Methods and Compositions for Reducing the Production of Water and Stimulating Hydrocarbon Production from a Subterranean Formation" and which is a continuation-in-part of U.S. Application No. 10/440,337.

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	APPLICANT Larry S. Eoff, et al	
	FILING DATE Concurrently Herewith	GROUP Unknown

Examine r Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		INIKORI, SOLOMON OVUEFERAYE, "Numerical Study of Water Coning Control with Downhole Water Sink (DWS) Well Completions in Vertical and Horizontal Wells," A Dissertation, August 2002, title page, contents, abstract and pp. 17-18, The Department of Petroleum Engineering	
		HALLIBURTON, 2001 Press Release, "First Halliburton H2Zero™ Conformance Solution Job Performed for a Producing Well in Egypt," www.halliburton.com/news/archives/2001esgnws_111901.jsp, November 19, 2001, 2 pp.	
		HALLIBURTON, 2001 Press Release, "Halliburton Performs First H2Zero™ Conformance Solution Job in North America," www.halliburton.com/news/archives/2001esgnws_082201.jsp, August 22, 2001, 2 pp.	
		HALLIBURTON, 2001 Press Release, "Halliburton Technology Uses Revolutionary Polymer System to Control Unwanted Water production," www.halliburton.com/news/archives/2001esgnws_053101.jsp, May 31, 2001, 2 pp.	
		BJ SERVICES COMPANY, Aquacon, 08/01/01, 2pp.	
		BJ SERVICES COMPANY, Aquatrol 1, 12/14/00, 2 pp.	
		EOFF, LARRY ET AL., "Structure and Process Optimization for the Use of a Polymeric Relative-Permeability Modifier in Conformance Control," SPE eLibrary paper no. 64985, 2001 Copyright, 2 pp.	
		BOTERMANS, C. WOUTER ET AL. "Relative Permeability Modifiers: Myth or Reality?," SPE eLibrary paper no. 68973, 2001 copyright, 2pp.	
		BJ SERVICES COMPANY, Aquacon, 08/01/01, 2 pp.	

Examiner Signature		Date Considered	
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<sup>1</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SENT TO: Commissioner for Patents, Washington, D.C. 20231.